

In re Patent Application of:
COBB ET AL.
Serial No. 09/393,639
Filing Date: September 10, 1999

B1
Cont.
a transmitter for transmitting the QPSK waveform
produced by said QPSK waveform generator.

1717. (Twice Amended) A method comprising the steps
of:

(a) providing a carrier signal comprising in-phase
(I) and quadrature (Q) components;

B2
(b) providing a data signal comprising I and Q
components and biasing the I and Q components of the data
signal with at least one offset comprising a spreading
waveform; and

(c) combining the I and Q components of the carrier
signal with the biased I and Q components of the data signal,
respectively, to produce a quadrature phase shift keyed (QPSK)
waveform.

1723. (Twice Amended) A method comprising the steps
of:

B3
(a) receiving a quadrature phase shift keyed (QPSK)
waveform having in-phase (I) and quadrature (Q) components of a
carrier modulated with I and Q components of a data signal, at
least one of the I and Q components of the data signal being
biased by an offset comprising a direct current (DC) offset
voltage; and

(b) conducting non-regenerative recovery of the QPSK
waveform received in step (a) to extract said carrier signal
based upon the offset.

27. (Amended) A method of transmitting information
comprising the steps of:

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providing a data signal representative of the
information and comprising in-phase (I) and quadrature (Q)
components;

In re Patent Application of:
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biasing at least one of the I and Q components with
an offset comprising a direct current (DC) offset;

generating a quadrature phase shift keyed (QPSK)
waveform based upon a carrier signal and the at least one
biased component; and

transmitting the QPSK waveform.

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28. (Amended) A method according to claim ¹⁷~~23~~,
wherein the at least one offset comprises a respective offset
for each of the I and Q components of the data signal.

↓
Please add the following claims:

²¹~~29~~. (New) A method of transmitting information
comprising the steps of:

providing a data signal representative of the
information and comprising in-phase (I) and quadrature (Q)
components;

biasing at least one of the I and Q components with
an offset comprising a spreading waveform;

generating a quadrature phase shift keyed (QPSK)
waveform based upon a carrier signal and the at least one
biased component; and

transmitting the QPSK waveform.

²²
30. (New) A method according to Claim ²¹~~29~~, further
including the steps of:

receiving the transmitted QPSK waveform; and
processing the received QPSK waveform to extract said
carrier signal therefrom.

²³
31. (New) A method according to Claim ²²~~30~~, further
including the step of:

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processing the received QPSK waveform using the carrier signal extracted therefrom to derive said data signal.

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~~32~~. (New) A method according to Claim ²³~~31~~, wherein said data signal is encoded with a forward error correction code, and further including the step of decoding the encoded data signal to recover said information from said data signal.

²⁵
~~33~~. (New) A method according to Claim ²⁴~~32~~, wherein said forward error correction code is one capable of extending error rate performance to a value of energy per bit to noise density ratio (E_b/N_o) less than 4 dB.

²⁶
~~34~~. (New) A method according to claim ²⁵~~33~~, wherein generating the QPSK waveform comprises multiplying the carrier signal with the digital signal.

²⁷
~~35~~. (New) A communication system comprising:
a quadrature phase shift keyed (QPSK) waveform generator for generating a QPSK waveform based upon a carrier signal and a data signal, the data signal being representative of information to be transmitted and comprising I and Q components, and said QPSK waveform generator biasing at least one of the I and Q components with an offset prior to generating the QPSK waveform, the offset comprising a spreading waveform; and

a transmitter for transmitting the QPSK waveform produced by said QPSK waveform generator.

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²⁹
~~36~~. (New) A communication system according to Claim ~~35~~, further including a receiver which is operative to receive said QPSK waveform and to extract said carrier signal therefrom.